

# SURFACE TRANSPORTATION PROGRAM (OFF SYSTEM) – BRIDGE

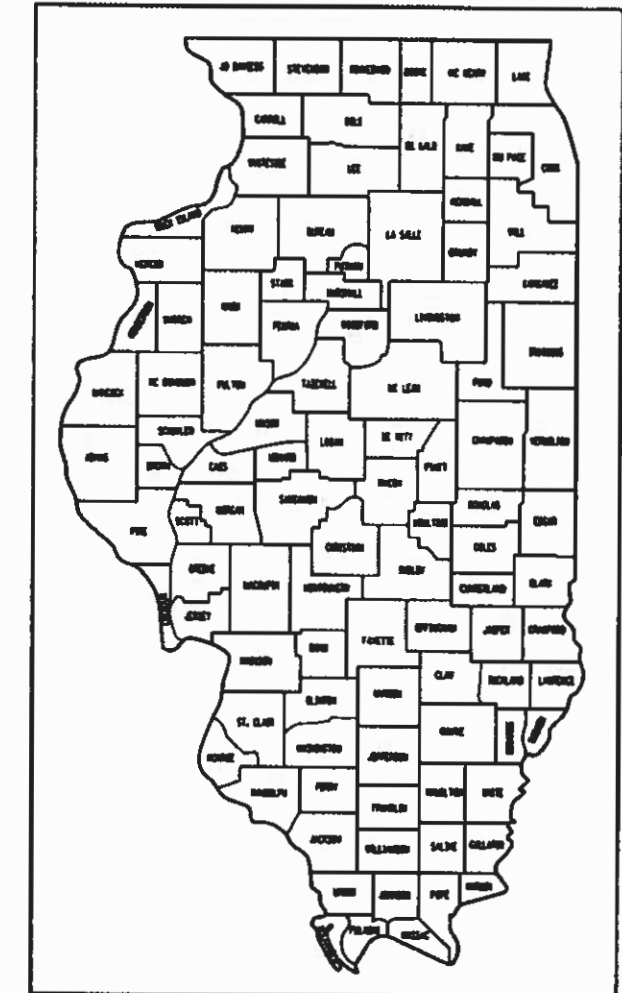
**DETAIL PLANS FOR  
TR 89A (McKEE ROAD)  
OVER MILLER CREEK  
SECTION 18-01165-00-BR  
PROJECT NO. 5AX4(099)**

**JOB NO. C-99-118-18  
ALEXANDER UNIT ROAD DISTRICT  
ALEXANDER COUNTY**

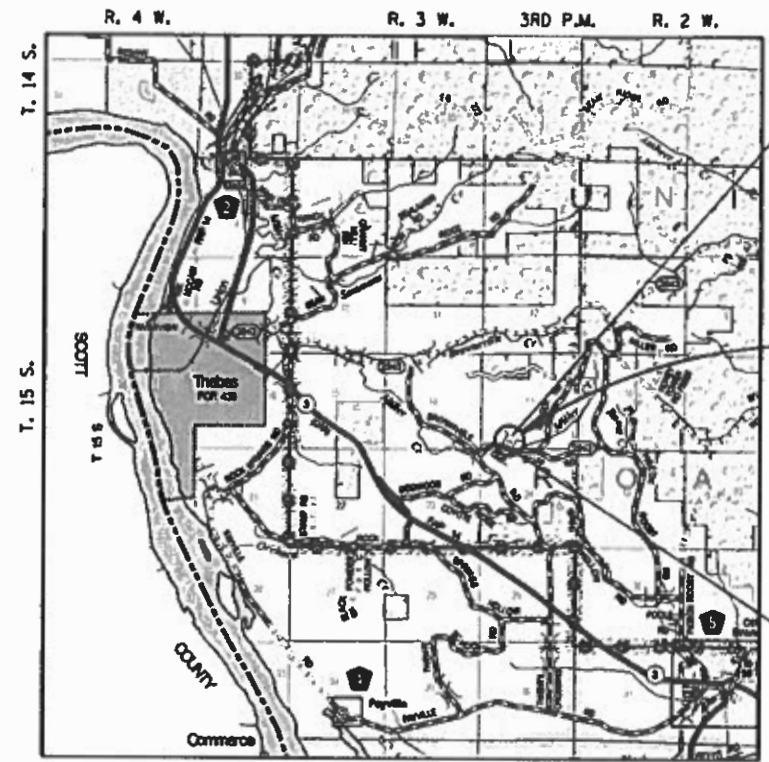
TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
89A	18-01165-00-BR	ALEXANDER	9	1
PROJECT NO. 5AX4(099)		CONTRACT NO. 99627		
ILLINOIS				

**INDEX OF SHEETS**

1. COVER SHEET
2. GENERAL NOTES, SUMMARY OF QUANTITIES AND TYPICAL SECTIONS
3. PLAN & PROFILE EXISTING & PROPOSED ROADWAY
4. GENERAL PLAN & ELEVATION
5. GENERAL DATA
6. MULTI-CELL PRECAST CULVERT TAPERED END SECTIONS
7. MULTI-CELL PRECAST CULVERT TAPERED END SECTIONS
8. SOIL BORING LOGS
9. SITE GRADING PLAN



LOCATION OF SECTION INDICATED THUS: -



SECTION 18-01165-00-BR  
ENDS STA 101+250.00

**PROJECT LOCATION**  
PROPOSED STRUCTURE NO. 002-3112 STATION 100+37.50  
DOUBLE PRECAST CONCRETE BOX CULVERT HAVING A  
CLEAR OPENING, EACH, OF 10'-0" X 8'-0" AND 28'-0" END  
TO END OF CULVERTS WITH 21'-0" PRECAST BOX CULVERT  
END SECTIONS, EACH END.

SECTION 18-01165-00-BR  
BEGINS STA 100+07.00

**LOCATION MAP**



PROJECT NET LENGTH = 118 FEET OR 0.022 MILES

**DESIGN CLASSIFICATION**

LOCAL ROAD (RURAL) A.D.T. = 0-250  
CURRENT A.D.T. = 10 (2017)  
DESIGN A.D.T. = 10 (2032)  
DESIGN SPEED = NONE

**CONTRACT NO. 99627**

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123  
OR 811

PREPARED BY:  
**HMG**  
Engineers • Surveyors



EXPIRES: NOVEMBER 30, 2021

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED	DECEMBER 2 2019
<i>[Signature]</i> ALEXANDER COUNTY ENGINEER	
PASSED	JAN 09 2020
<i>[Signature]</i> DISTRICT 9 ENGINEER OF LOCAL ROADS AND STREETS	
RELEASING FOR BID BASED UPON LIMITED REVIEW	JAN 09 2020
<i>[Signature]</i> ACTING REGION FIVE ENGINEER	

*[Signature]* DATE: 12/4/2019  
KENZIE M. MEYER  
REGISTERED PROFESSIONAL ENGINEER  
IN ILLINOIS NO. 062-063850

**GENERAL NOTES**

- ALL ELEVATIONS IN THE PLANS ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
- THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF EXISTING UTILITIES BEFORE COMMENCING WORK BY THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE ANY AND ALL EXISTING UNDERGROUND UTILITIES. THE APPROXIMATE LOCATIONS OF THE KNOWN UTILITIES SHOWN ON THE PLANS REPRESENTS THE BEST INFORMATION AVAILABLE AT THE TIME OF DESIGN.
- THE CONTRACTOR SHALL GIVE AT LEAST TWO WEEKS NOTICE BEFORE BEGINNING CONSTRUCTION SO THE ENGINEER MAY GIVE ADEQUATE NOTICE TO ALL EMERGENCY, SCHOOL AND POSTAL SERVICES.
- THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL AND PROTECTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING POSITIVE DRAINAGE IN THE DISTURBED AREAS, TO THE SATISFACTION OF THE ENGINEER. ANY GRADING SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EARTH EXCAVATION, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- GRADING SHALL BE DONE BY HAND AROUND LIGHT POLES, UTILITY POLES, SIGN POSTS, SHRUBS, TREES OR OTHER NATURAL OR MAN-MADE OBJECTS WHERE FILLS OR CUTS ARE ADJACENT TO THESE ITEMS. IT IS THE INTENT THAT THE LIMITS OF CONSTRUCTION BE SUCH AS TO PRESERVE, IN THE ORIGINAL STATE, AS MUCH AREA AS POSSIBLE. THE DECISION AS TO ITEMS TO REMAIN IN PLACE SHALL BE DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCLUDED IN THE CONTRACT UNIT PRICE FOR EARTH EXCAVATION, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- AGGREGATE BASE COURSE SHALL BE PROOF ROLLED TO SATISFACTION OF ENGINEER.
- THE FOLLOWING APPLICATION RATES HAVE BEEN USED IN THE CALCULATION OF THE PLAN QUANTITIES:

AGGREGATE BASE COURSE	2.05 TONS/CY
RIPRAP	1.6 TONS/CY
TEMPORARY EROSION CONTROL SEEDING	2 APPLICATIONS OVER SEEDING AREA

**SUMMARY OF QUANTITIES**

SPEC. PROV. SPECIALTY ITEM	CODE NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
*	20200100	EARTH EXCAVATION	CU YD	61
	20300100	CHANNEL EXCAVATION	CU YD	133
	20700220	POROUS GRANULAR EMBANKMENT	CU YD	35
*	25000200	SEEDING, CLASS 2	ACRE	0.25
*	28100809	STONE DUMPED RIPRAP, CLASS A5	TON	140
*	35100100	AGGREGATE BASE COURSE, TYPE A	TON	122
	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
	50200100	STRUCTURE EXCAVATION	CU YD	123
	51500100	NAME PLATES	EACH	1
	54001001	BOX CULVERT END SECTIONS, CULVERT NO. 1	EACH	4
	54011008	PRECAST CONCRETE BOX CULVERTS 10'x8'	FOOT	56
	59100100	GEOCOMPOSITE WALL DRAIN	SO YD	91
*	63000030	STRONG POST GUARDRAIL ATTACHED TO CULVERT	FOOT	42
	67100100	MOBILIZATION	LSUM	1
*	72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
	X0900064	MEMBRANE WATERPROOFING FOR BURIED STRUCTURES	SO YD	91

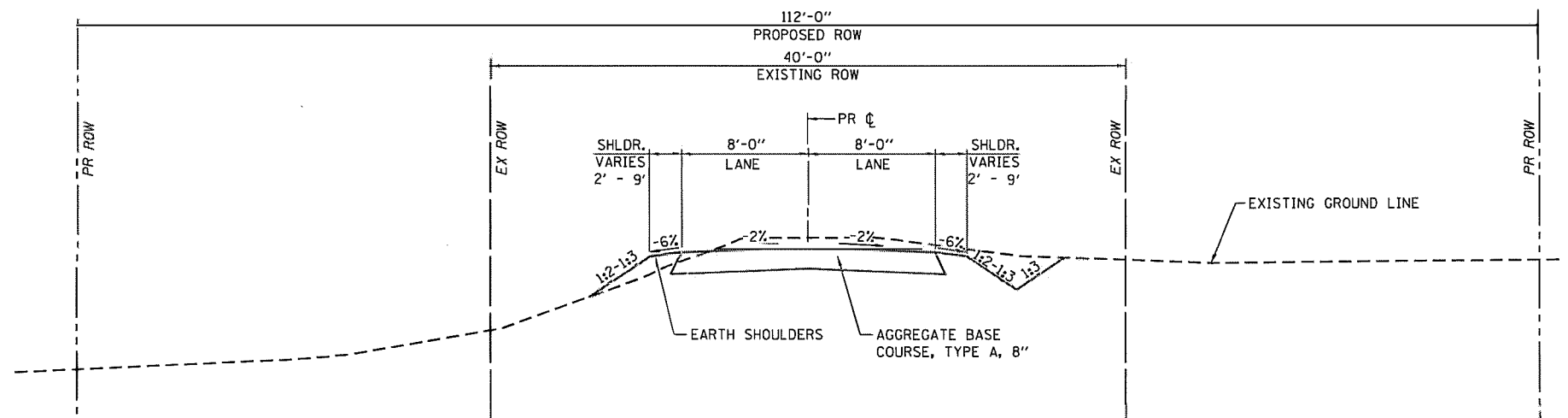
**HIGHWAY STANDARDS**

STD NO	STD TITLE
000001-07	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-04	NAME PLATE FOR BRIDGES
630001-12	STEEL PLATE BEAM GUARDRAIL
630101-10	STRONG POST GUARDRAIL ATTACHED TO CULVERT
701901-08	TRAFFIC CONTROL DEVICES
725001-01	OBJECT AND TERMINAL MARKERS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

**KNOWN UTILITY COMPANIES**

**ELECTRIC**  
SOUTHERN ILLINOIS ELECTRIC  
(618) 827-3555

**COMMUNICATIONS**  
ATT/DISTRIBUTION  
618 629 @ ATT.COM

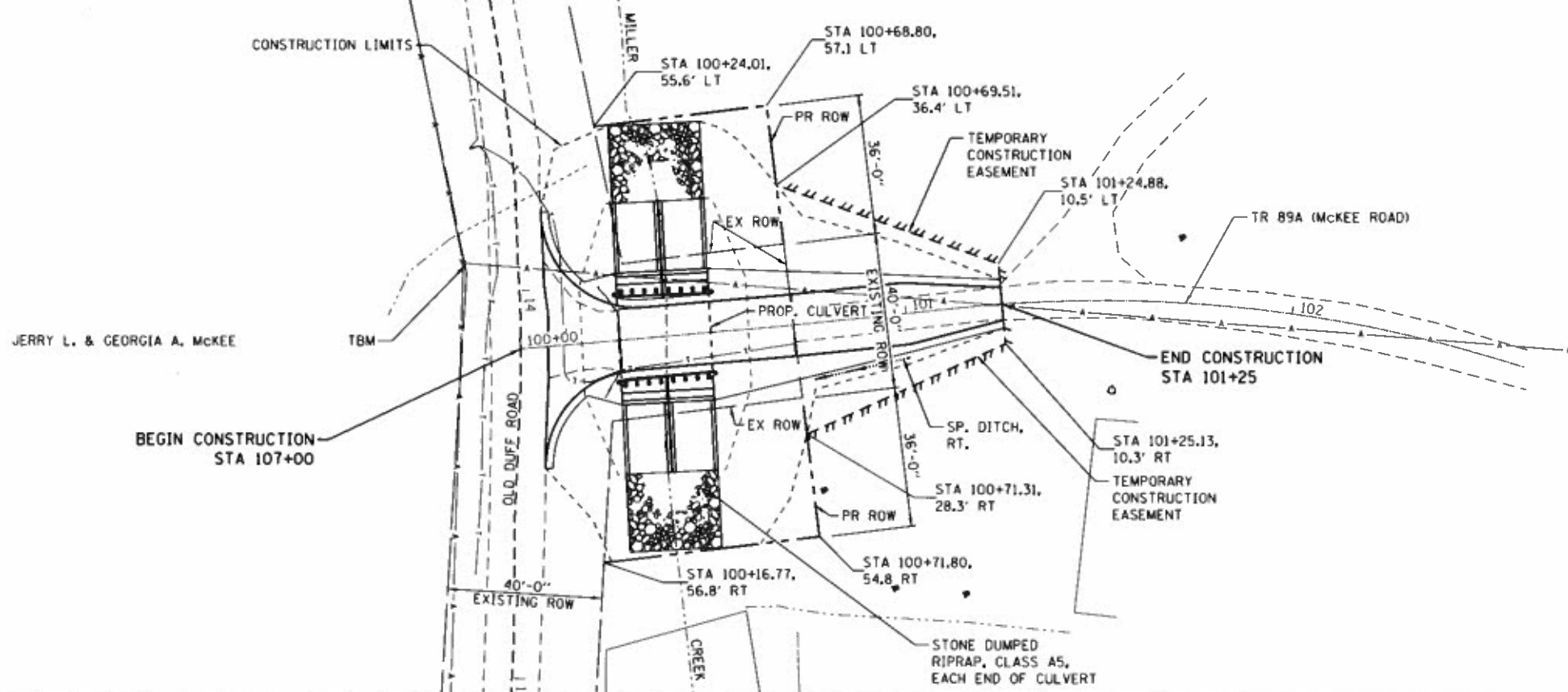


**TYPICAL ROADWAY CROSS SECTION**

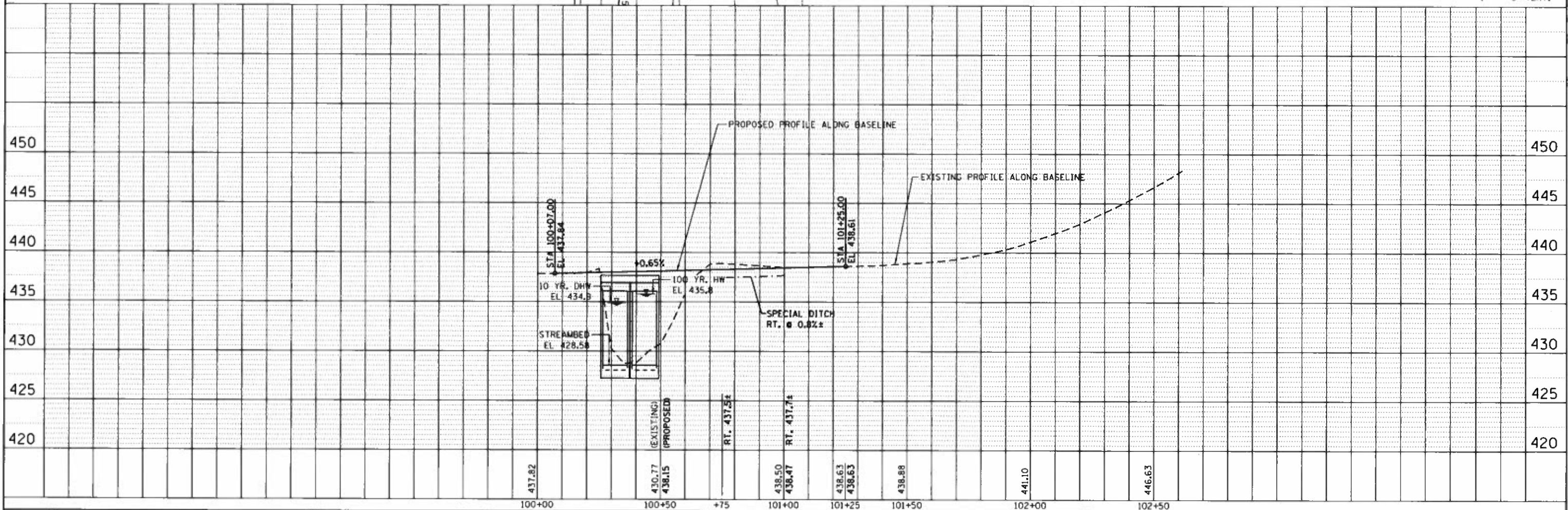
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HMG ENGINEERS, INC. 9360 HOLY CROSS LANE BREESE, ILLINOIS 62230 (618) 526-9611	USER NAME = kl aux	DRAWN - KH L	REVISE D -	B9A	18-01165-00-BR	ALEXANDER	9 2	
ENGINEERS & SURVEYORS	PLOT SCALE = 10,000' / in.	CHECKED - LDG	REVISED -	PROJECT NO. 5AX4(099) CONTRACT NO. 99627				
	PLOT DATE = 2/11/2020	DATE -	REVISED -	ILLINOIS FED. AID PROJECT				
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION			GENERAL NOTES, SUMMARY OF QUANTITIES & TYPICAL SECTIONS				SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.	

**BENCHMARK:** TBM RR SPIKE IN PP  
 STA 99+87.58, 22.7' LT  
 EL 436.33

JERRY & GEORGIA McKEE



SCALE: 1" = 20' HORIZ.  
 1" = 5' VERT.



DATE	
BY	
PLAN	
NOTE BOOK	
NO.	
DATE	
BY	
PROFILE	
NOTE BOOK	
NO.	

DATE	
BY	
PROFILE	
NOTE BOOK	
NO.	

FILE NAME = H:\7088\_AlexCo\_BoxCulvert\CAD\_Sheets\7088\_Sht3\_P&P\_McKee.dgn  
**HMG** ENGINEERS, INC.  
 9340 HOLY CROSS LANE  
 BREESE, ILLINOIS 62230  
 (618) 526-9611

DESIGNED -  
 DRAWN -  
 CHECKED -  
 DATE -

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PLAN & PROFILE  
 EXISTING & PROPOSED ROADWAY  
 SHEET 1 OF 1 SHEETS STA. TO STA.

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
89A	18-01165-00-BR	ALEXANDER	9	3
PROJECT NO. 5AX4(099)			CONTRACT NO. 99621	
ILLINOIS FED. AID PROJECT				

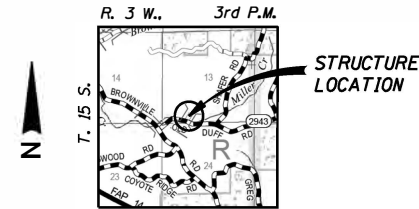
**BENCHMARK** TBM RR Spike in PP  
Sta 99+87.58, 22.7' Lt  
EI 436.33

**EXISTING STRUCTURE**

Existing Structure No. 002-3073 is a single span steel girder bridge with timber deck on spill through timber abutments measuring 48.7' back to back of abutments with a 14.8' clear roadway width.

The Contractor shall remove and dispose of the existing structure in accordance with Section 501 of the Standard Specifications.

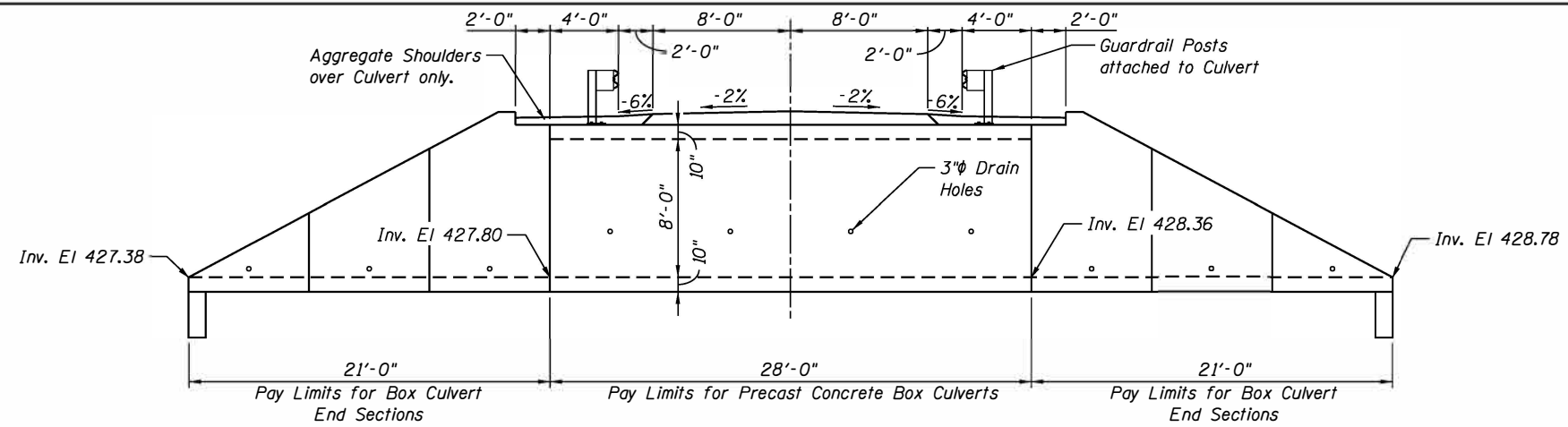
**SALVAGE:** Steel Beams shall be delivered to Alexander County Highway Department Yard.



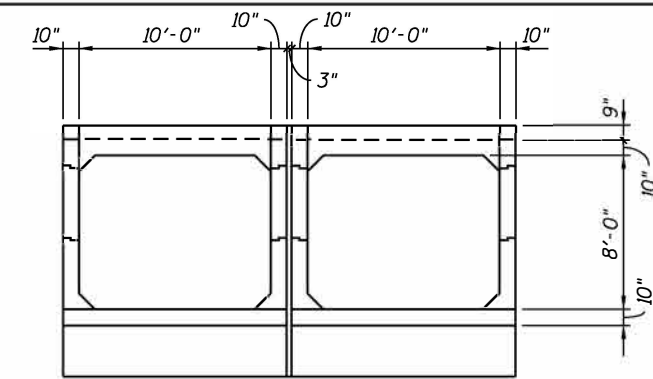
**LOCATION SKETCH**

**INDEX OF BRIDGE SHEETS**

1. General Plan & Elevation
2. General Data
3. Multi-Cell Precast Box Culvert Tapered End Sections
4. Multi-Cell Precast Box Culvert Tapered End Sections
5. Soil Boring Logs
6. Site Grading Plan



**ELEVATION**



**END VIEW**

**DESIGN SPECIFICATIONS**

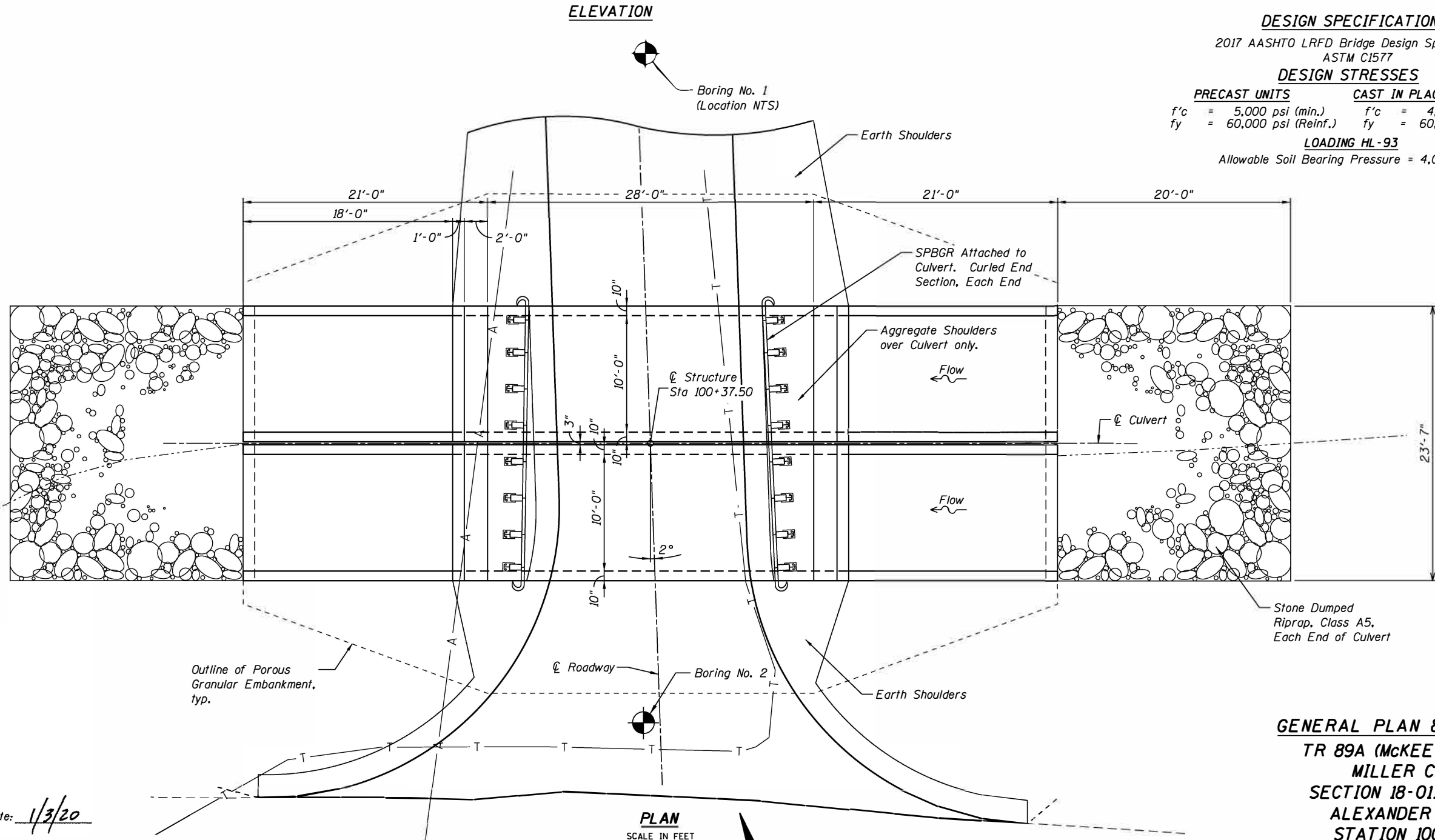
2017 AASHTO LRFD Bridge Design Specifications  
ASTM C1577

**DESIGN STRESSES**

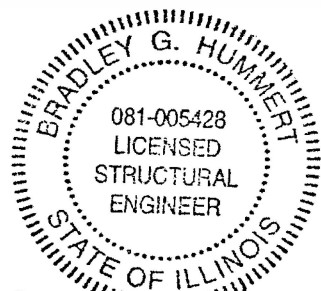
PRECAST UNITS	CAST IN PLACE CONCRETE
$f'_c = 5,000$ psi (min.)	$f'_c = 4,000$ psi
$f_y = 60,000$ psi (Reinf.)	$f_y = 60,000$ psi (Reinf.)

**LOADING HL-93**

Allowable Soil Bearing Pressure = 4,000 psf



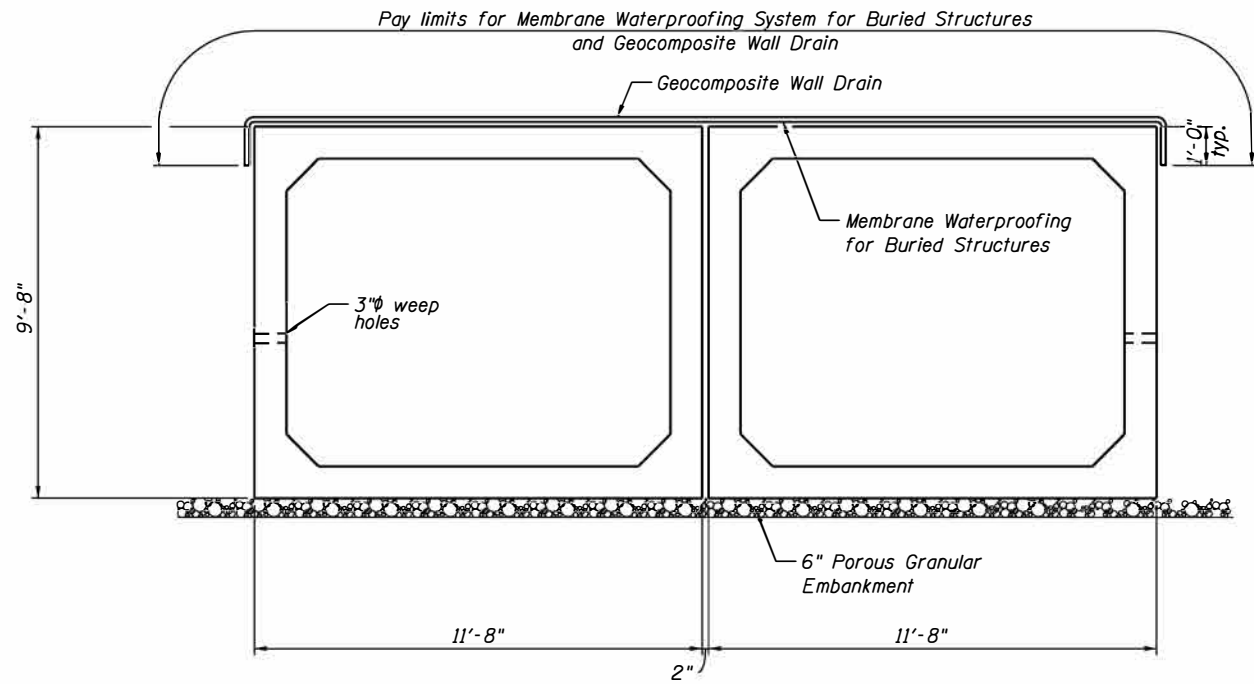
**PLAN**  
SCALE IN FEET  
0 5 10



*Bradley G. Hummert* Date: 1/3/20  
Bradley G. Hummert  
Licensed Structural Engineer  
in Illinois No. 081-005428 Expires: November 30, 2020

**GENERAL PLAN & ELEVATION**  
TR 89A (McKEE RD.) OVER  
MILLER CREEK  
SECTION 18-01165-00-BR  
ALEXANDER COUNTY  
STATION 100+37.50  
STRUCTURE NO. 002-3112

FILE NAME = H:\17800_AlexCo_BoxCulvert\CAD_Sheets\7800_Sht4_GPEL.dgn	DESIGNED - KMM	REVISED -	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HMG ENGINEERS, INC. 9360 HOLY CROSS LANE BREESE, ILLINOIS 62230 (618) 526-9611	DRAWN - KHL	REVISED -	89A	18-01165-00-BR	ALEXANDER	9	4	
USE R NAME = klauk	CHECKED - LDG	REVISED -	PROJECT NO. 5AX4(099)				CONTRACT NO. 99627	
PLOT DATE = 2/5/2020	DATE -	REVISED -	ILLINOIS				FED. AID PROJECT	
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION			GENERAL PLAN AND ELEVATION				SCALE: SHEET 1 OF 6 SHEETS STA. TO STA.	



**PRECAST CONCRETE BOX CULVERT**

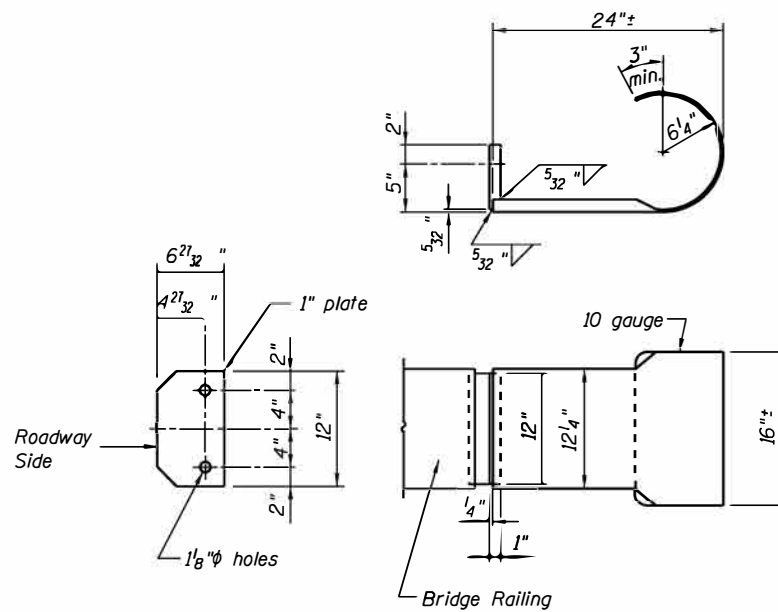
Miller Creek  
 Built 201 by  
 Alexander Unit Road District  
 Alexander County  
 Section 18-01165-00-BR  
 Station 100+37.50  
 SN 002-3112 Loading HL-93

**NAME PLATE**  
 Locate Name Plate as shown in  
 Plan View. See Std. 515001.

**WATERWAY INFORMATION**

Flood	Freq. Yr.	Q CFS	Opening Sq Ft		Nat. HWE	Head - Ft		Headwater EI		
			Exist	Prop		Exist	Prop	Exist	Prop	
Design		10	724	140	118	434.9	0.1	0.3	435.0	435.2
Base		100	1340	205	150	435.8	1.6	1.5	437.4	437.3
Scour Design Check		200	1470	205	150	436.0	1.4	1.2	437.4	437.2
Overtop Existing		90	1300	205		435.8	1.7		437.5	
Overtop Proposed		150	1400		150	435.9		1.4		437.3
Max. Calc.		500	1840	194	150	436.6	0.1	1.5	436.7	438.1

Drainage Area = 0.75 Sq Mi  
 Existing Overtopping EI = 437.82  
 Proposed Overtopping EI = 437.82  
 • Sta 100+00  
 • Sta 100+00

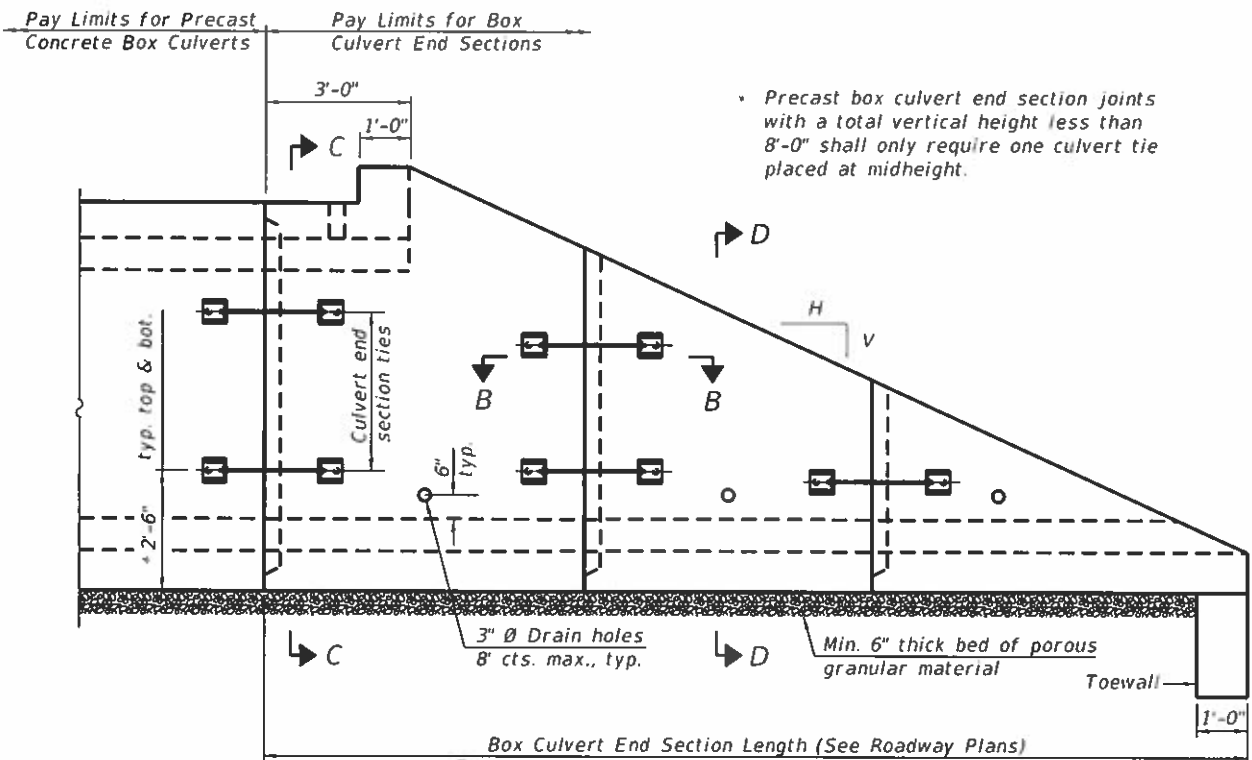


**CURLED END SECTION DETAILS**

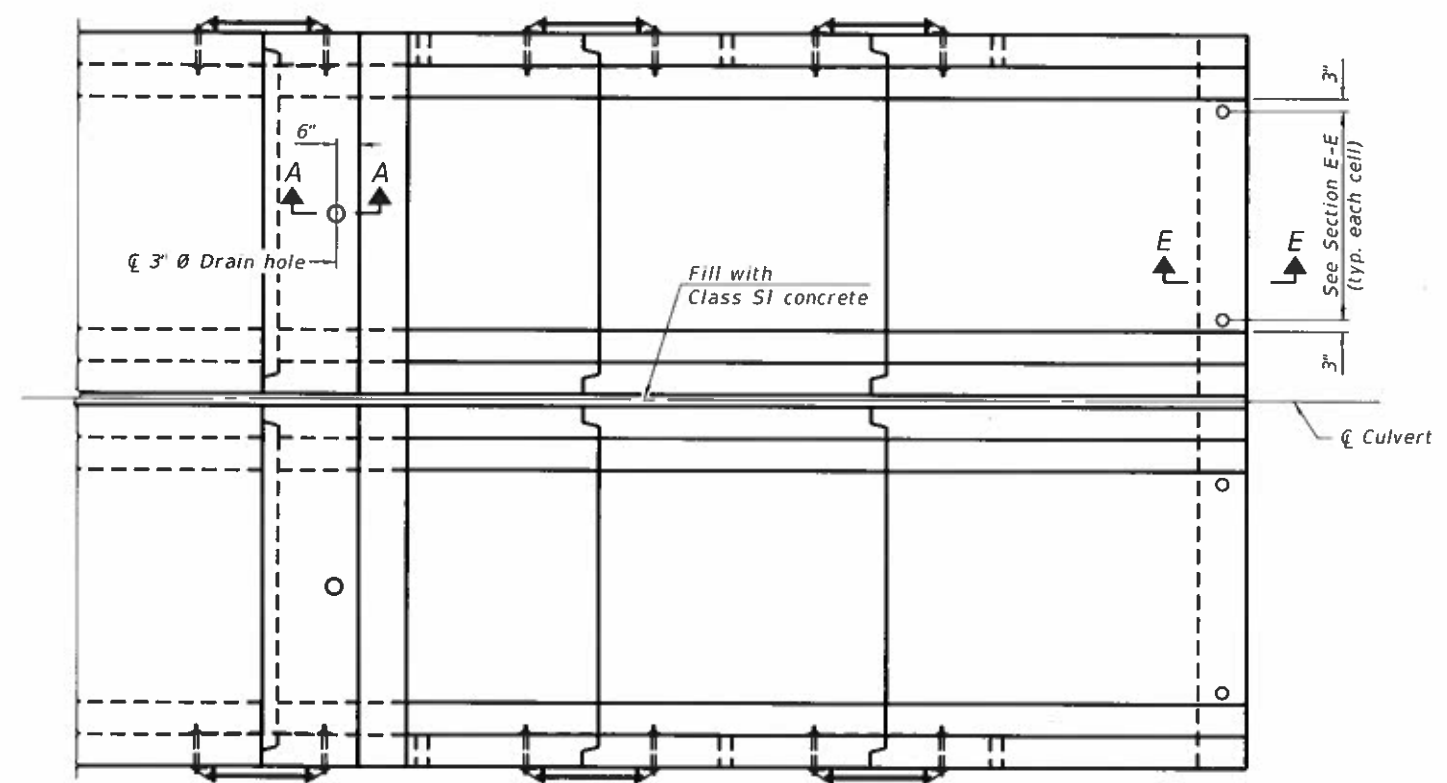
**Note:**  
 The Railing End Section shall be included in the cost of "Strong Post Guardrail Attached to Culvert", and no additional compensation will be allowed.

**TOTAL BILL OF MATERIAL**

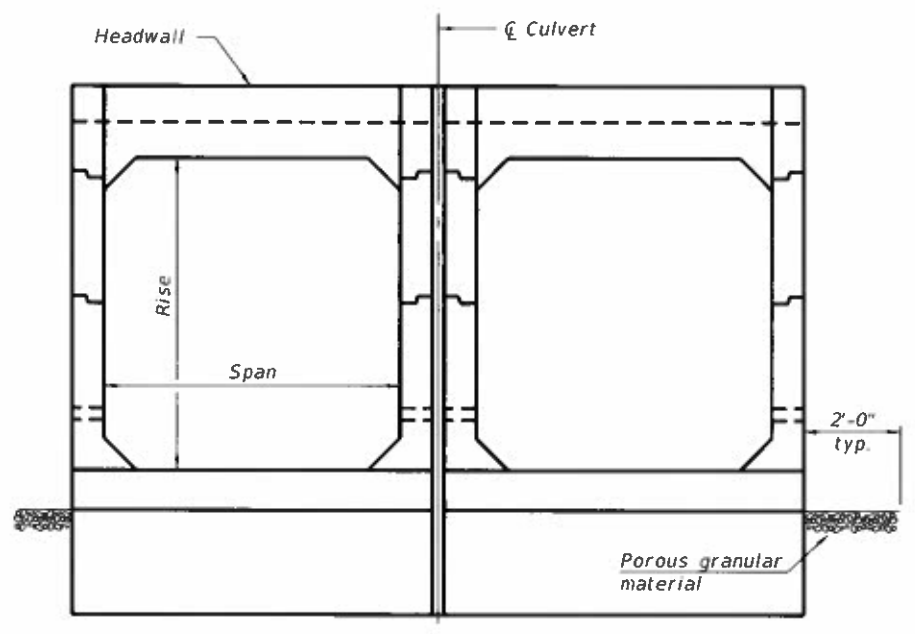
ITEM	UNIT	TOTAL
Channel Excavation	Cu Yd	133
Porous Granular Embankment	Cu Yd	35
Stone Dumped Riprap, Class A5	Ton	140
Removal of Existing Structures	Each	1
Structure Excavation	Cu Yd	123
Name Plates	Each	1
Box Culvert End Sections, Culvert No. 1	Each	4
Precast Prestressed Concrete Box Culvert 10'x8'	Foot	56
Geocomposite Wall Drain	Sq Yd	91
Strong Post Guardrail Attached to Culvert	Foot	42
Membrane Waterproofing for Buried Structures	Sq Yd	91



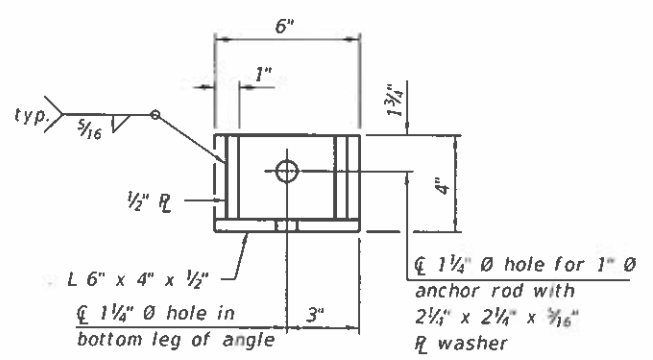
**ELEVATION**



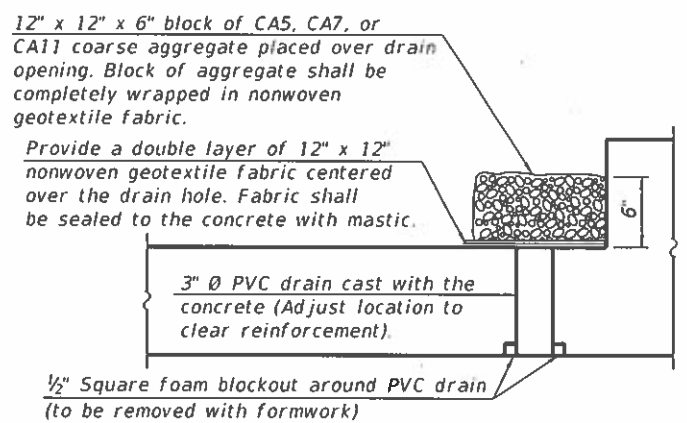
**PLAN**



**END VIEW**



**RESTRAINT ANGLE DETAIL**



**SECTION A-A**

(All costs associated with furnishing and constructing the above drain detail will not be measured for payment but shall be included in the contract unit price for the associated work.)

**GENERAL NOTES**

Box Culvert End Sections shall be constructed according to the requirements of Section 540 of the Standard Specifications except as modified herein. This work will be measured for payment as each, with each end of each culvert being one each. End sections will be paid for at the contract unit price per each for Box Culvert End Sections of the culvert number specified.

Typical box section dimensions, materials, and reinforcement details for Box Culvert End Sections shall be according to the requirements of ASTM C 1577 as required for the design of the portion of the culvert within the limits of Precast Concrete Box Culverts except as modified herein.

Number of segments shown in Elevation is for example only. Length and number of precast box sections required to construct Box Culvert End Sections shall be determined by the Contractor.

See roadway plans for embankment slope (V:H).

1" Ø anchor rods for the culvert ties shall conform to the requirements of ASTM F1554, Grade 105. Structural steel for tie plate and restraint angle shall conform to the requirements of Article 1006.04 of the Standard Specifications. All components of the culvert tie detail shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable. 2 1/4" x 2 1/4" x 3/16" plate washers shall be provided under each nut required for the anchor rods. Anchor rods connecting precast sections shall be brought to a snug tight condition followed by an additional 1/2 turn on one of the nuts for anchor rods installed in the walls. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut. Holes in the walls for the culvert tie assembly may be drilled using core bits in lieu of using formed holes.

All costs associated with furnishing and installing or constructing the toewall and culvert ties will not be measured for payment but shall be included in the contract unit price for Box Culvert End Sections of the culvert number specified.

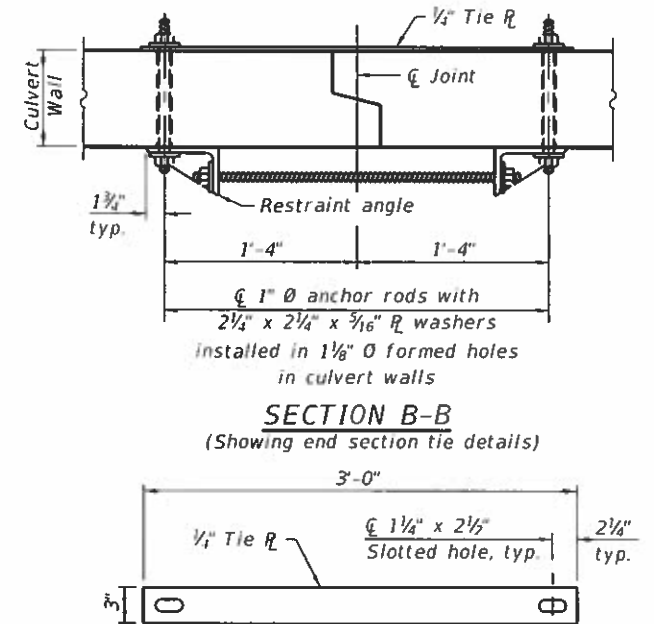
Drain holes shall conform to the requirements of Article 503.11 of the Standard Specifications unless noted otherwise.

Nonwoven geotextile fabric shall conform to the requirements of Article 1080.01. The minimum weight of the fabric shall be 6 oz. / sq. yd.

For end sections with traversable pipe grate systems, see grate detail sheet for required modifications.

The 3" nominal space between adjacent end sections shall be filled with Class S1 concrete in accordance with Article 540.06 of the Standard Specifications. Cost included with Box Culvert End Sections.

Details for double cell box culvert shown. Details for other multi-cell box culverts similar.



**TIE PLATE DETAIL**

MCB-TES 2-17-2017

FILE NAME: H:\17300\_AlexCo\_BoxCulvert\CAD\_Sheets\17300\_Sht6\_End Section.dgn  
 USER: HMMF = HMMF  
 PLOT SCALE = 1/8" = 1'-0"  
 PLOT DATE = 11/27/2019

DESIGNED - KMM	REVISED -
DRAWN - KHL	REVISED -
CHECKED - LDG	REVISED -
DATE -	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**MULTI-CELL PRECAST BOX CULVERT TAPERED END SECTIONS**  
**STRUCTURE NO. 002-3112**

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
89A	18-01165-00-BR	ALEXANDER	9	6
PROJECT NO. 5AX4(099)		CONTRACT NO. 99627		
SCALE:		ILLINOIS FED. AID PROJECT		

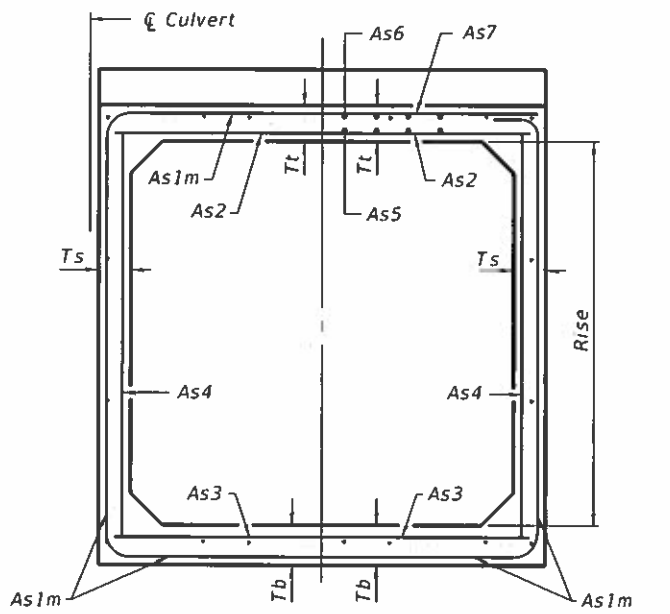
As1m REINFORCEMENT		(in. <sup>2</sup> /ft)										
Ts (in.)	Rise (ft)	2	3	4	5	6	7	8	9	10	11	12
4	0.19	0.17										
5	0.26	0.21	0.18									
6	0.22	0.26	0.23	0.22								
7	0.25	0.33	0.59	0.27	0.28							
8	0.40	0.35	0.43	0.39	0.36	0.34	0.40					
9	0.44	0.39	0.35	0.43	0.40	0.37	0.36	0.48				
10	0.48	0.42	0.38	0.47	0.44	0.41	0.38	0.42	0.56			
11	0.52	0.45	0.54	0.50	0.46	0.44	0.41	0.46	0.50	0.65		
12	0.55	0.49	0.58	0.54	0.50	0.48	0.45	0.46	0.46	0.61	0.75	

(As1m reinforcement based upon welded wire reinforcement conforming to AASHTO M 55 or M 221).

Notes:  
 Alternate Section D-D is provided to allow the Contractor the option of casting the bottom slab of the end section first followed by construction of the sidewalls using conventional forming methods. Shop drawings that detail slab thickness and reinforcement layout shall be submitted to the Engineer for review and approval when using Alternate Section D-D.  
 The size and spacing of the v2 bars shall provide a minimum reinforcement area along each face of the walls (in.<sup>2</sup>/ft.) equal to 1.10(As1m). v2 bars may consist of #3 thru #6 size reinforcement bars and the longitudinal spacing shall not exceed the lesser of the wall thickness or 8 inches.  
 Bonded construction joints shall be prepared according to Article 503.09 of the Standard Specifications.  
 Sections C-C, D-D, and Headwall Elevation are symmetric about  $\bar{C}$  culvert through 180° rotation.

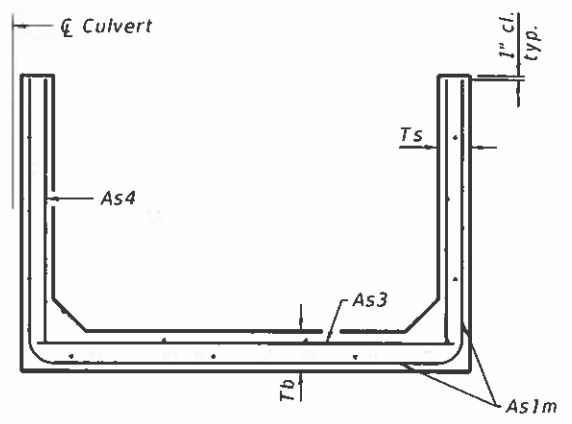
**11 DIMENSION**

- #3 bar = 2'-0"
- #4 bar = 2'-8"
- #5 bar = 3'-4"
- #6 bar = 3'-11"

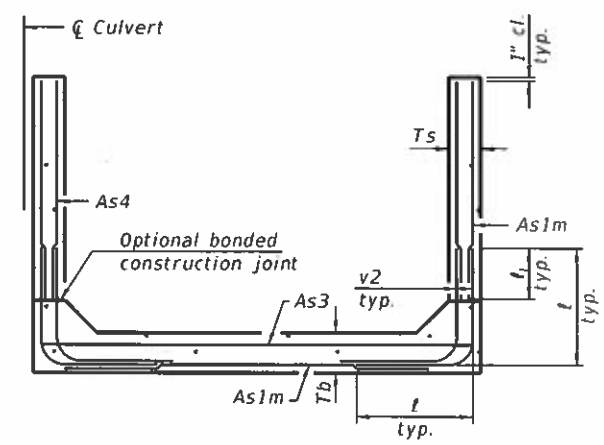


(Design Earth Cover  $\geq$  2 ft) (Design Earth Cover < 2 ft)

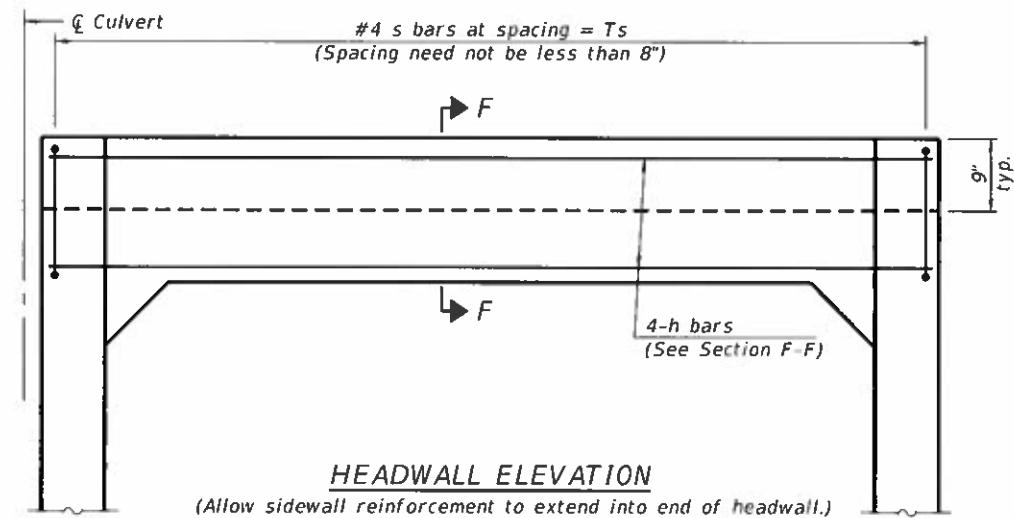
**SECTION C-C**



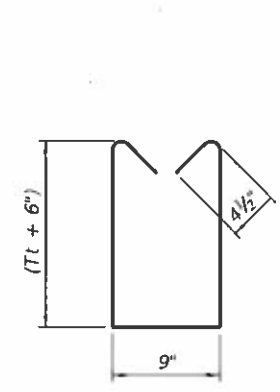
**SECTION D-D**



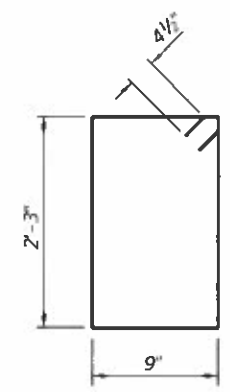
**ALTERNATE SECTION D-D**



**HEADWALL ELEVATION**  
(Allow sidewall reinforcement to extend into end of headwall.)



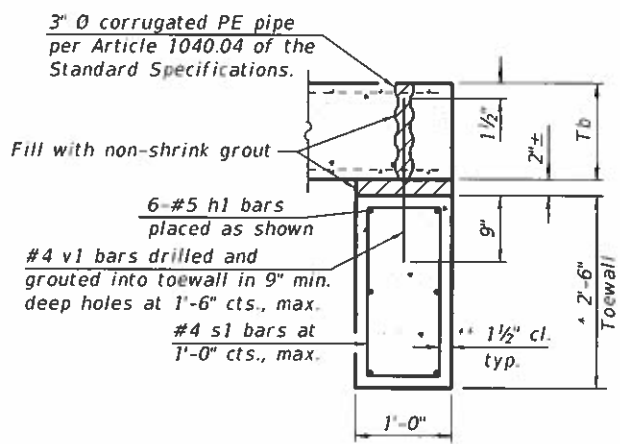
**BAR S**



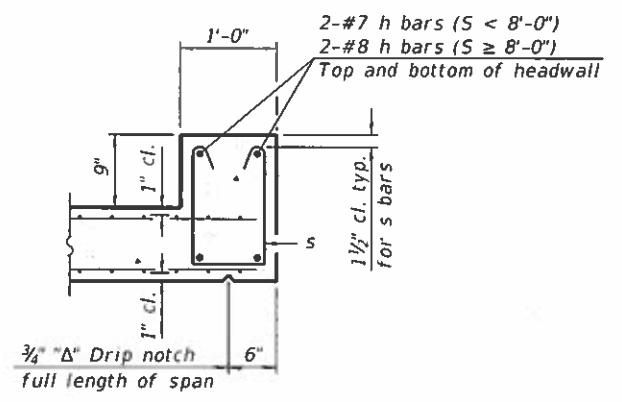
**BAR S1**

**TOEWALL CONSTRUCTION SEQUENCE**

1. Perform excavation and construct toewall.
  2. Backfill according to the applicable paragraphs of Article 502.10 of the Standard Specifications and place bedding for precast box culvert end sections.
  3. Set precast box culvert end section.
  4. Drill and epoxy grout reinforcement in toewall in accordance with Section 584 of the Standard Specifications.
  5. Pressure grout voids using non-shrink grout conforming to Section 1024 of the Standard Specifications.
- \* The Contractor may furnish a precast or cast-in-place toewall. The Contractor shall be responsible for the strength and stability of the precast toewall during handling. Additional lifting points may be required depending upon the length of the toewall or the Contractor may need to modify the design of the toewall for the proposed handling the method.
- \*\* If soil conditions permit, the sides of the toewall may be poured directly against the soil. The clear cover on the sides of the toewall shall be increased to 3" by increasing the thickness of the toewall.



**SECTION E-E**



**SECTION F-F**

MCB-TES 2-17-2017

(Sheet 2 of 2)

FILE NAME = H:\7800_AlexCo_BoxCulvert\CAD_Sheet\7800_Sht2_End_Section2.dgn	DESIGNED - KMM	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>MULTI-CELL PRECAST BOX CULVERT TAPERED END SECTIONS STRUCTURE NO. 002-3112</b>		T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HMG ENGINEERS, INC. 9360 HOLY CROSS LANE BREESE, ILLINOIS 62230 (618) 526-9611	DRAWN - KHL	REVISED -				89A	18-01165-00-BR	ALEXANDER	9	7
USFR NAME = klauk	CHECKED - LDG	REVISED -				PROJECT NO. 5AX4(099)		CONTRACT NO. 99627		
PLOT SCALE = 10.0001 : 1 in.	DATE -	REVISED -				SCALE:		SHEET 4 OF 6 SHEETS STA.		TO STA.

HOLCOMB FOUNDATION ENGINEERING INC.  
 393 Wood Road 618-529-5262  
 Carbondale, IL 62901 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-18201 Bridge McKee Road over Miller Creek Date: 9/10/2018  
 Section: Station Bored by: B. Schwartz  
 Structure: 002-3073 Checked By: J. Holcomb  
 County: Alexander

Boring No. 1	Elevation	N	Cu	tsf	%	Surface Water Elev.		Elevation	N	Cu	tsf	%
						Ground Water Elev. During Drilling	Upon Completion					
Ground Surface	438.7											
15" Crushed Stone												
Brown Silty CLAY (A-6)		7	1.25	22								
Brown Mottled Gray Silty CLAY w/chert gravel and sand (A-6)	433.7	6	--	28								
		18	0.65	16								
End of Boring @ -30.0'												
		43	0.35	14								
		100	0.76	1.08	26							
		70	--	13								
		100	0.75	26								
Tan to Brown SAND w/chert gravel and clay (A-2-4)	420.7											
		20	80	--	25							

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
 Cu - Unconfined Compressive Strength in tons/sq.ft.  
 w - Water Content - percentage of oven dry weight - %  
 B = Bulge Failure  
 S = Shear Failure  
 E = Estimated Value  
 P = Penetrometer

HOLCOMB FOUNDATION ENGINEERING INC.  
 393 Wood Road 618-529-5262  
 Carbondale, IL 62901 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-18201 Bridge McKee Road over Miller Creek Date: 9/10/2018  
 Section: Station Bored by: B. Schwartz  
 Structure: 002-3073 Checked By: J. Holcomb  
 County: Alexander

Boring No. 2	Elevation	N	Cu	tsf	%	Surface Water Elev.		Elevation	N	Cu	tsf	%
						Ground Water Elev. During Drilling	Upon Completion					
Ground Surface	437.9											
2" Surface over 2" Crushed Stone												
Silty CLAY w/gravel(A-6)	436.4											
Brown Silty CLAY (A-6)		2	0.65	25								
		2	0.75	28								
Brown Silty CLAY w/chert gravel (A-6)	431.9											
		35	0.48	16								
End of Boring @ -30.0'												
		40	1.45	14								
		30	0.78	19								
		15	0.6	22								
Tan to Brown Silty CLAY (A-6) w/sand and chert gravel	422.9											
		32	--	14								
		100	0.73	--	33							

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
 Cu - Unconfined Compressive Strength in tons/sq.ft.  
 w - Water Content - percentage of oven dry weight - %  
 B = Bulge Failure  
 S = Shear Failure  
 E = Estimated Value  
 P = Penetrometer

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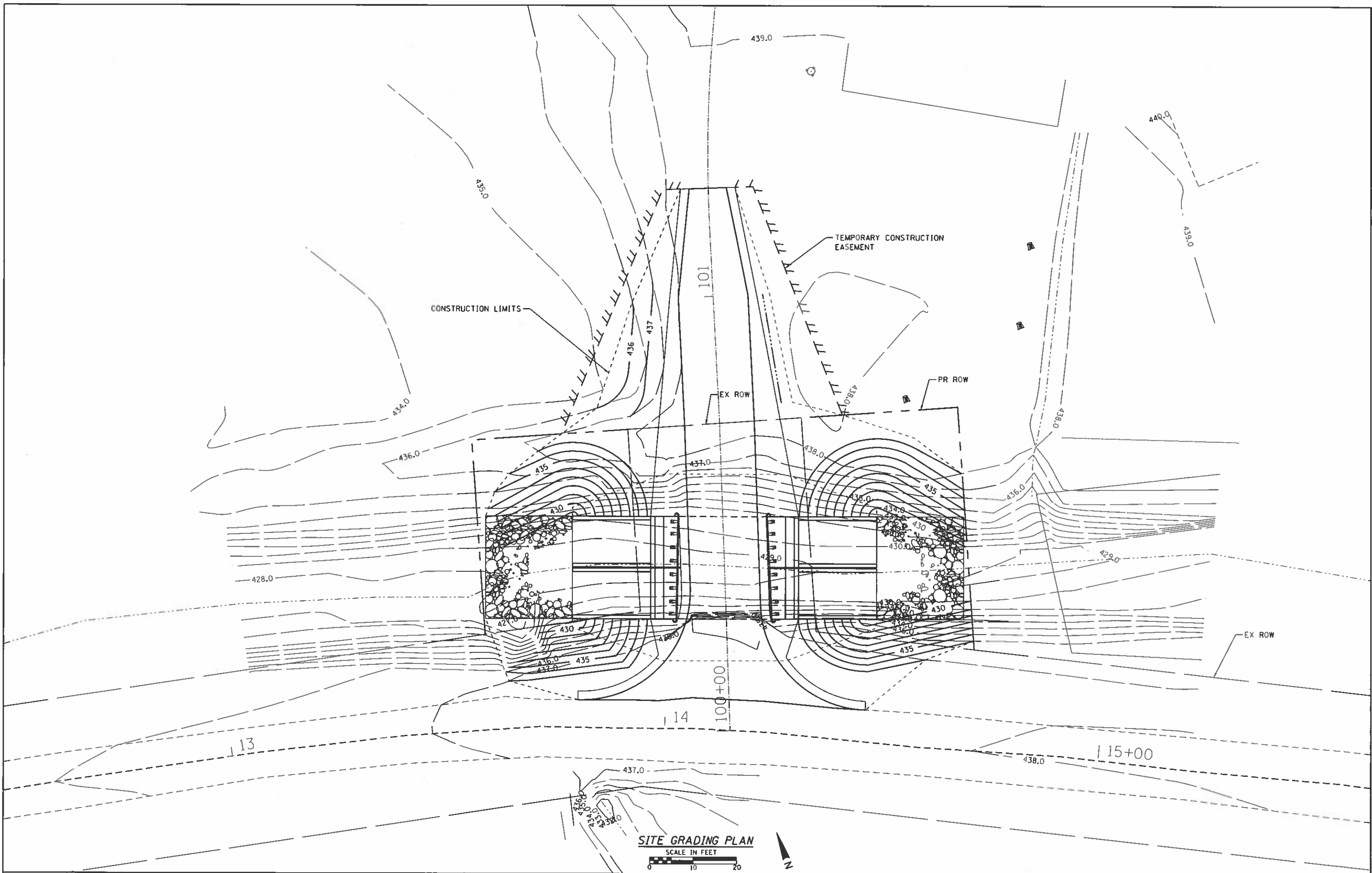
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS  
 STRUCTURE NO. 002-3112  
 SCALE: SHEET 5 OF 6 SHEETS STA. TO STA.

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
89A	18-01165-00-BR	ALEXANDER	9	8
PROJECT NO. SAX4(099)			CONTRACT NO. 99627	

ILLINOIS FED. AID PROJECT





**SITE GRADING PLAN**

SCALE IN FEET  
0 10 20

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**HMG** ENGINEERS, INC.  
 9360 HOLY CROSS LANE  
 BREESE, ILLINOIS 62230  
 Engineers • Surveyors (618) 526-9611

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DRAWN -	KHL	REVISED -	
CHECKED -	LDG	REVISED -	
DATE -		REVISED -	

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**SITE GRADING PLAN  
 STRUCTURE NO. 002-3112**

SCALE: SHEET 6 OF 6 SHEETS STA. TO STA.

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
89A	18-01165-00-BR	ALEXANDER	9	9
PROJECT NO. 5AX4(099)				CONTRACT NO. 97627
ILLINOIS FED. AID PROJECT				